Style matters
Insights for conversational user interfaces from sociolinguistic theory

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Computers Are Social Actors (CASA)
e.g. Nass et al (1994)
Who’s talking?

Voice1 and voice2

Not included for permissions reasons

Voice1 – MC older females
Voice2 – WC adolescent girls
How do we know?

• speech and language varies systematically at all linguistic levels, including speech
Key premises

- speech and language are **variable**
- variation **indexes** information about speakers beyond linguistic contrasts
- **social-indexical** information is an integral part of speech
Speaker variability

• speaker-generated variation is
  – not just ‘noise’
  – systematic
  – gradient
  – informative to speaker and hearer
  – the basis for language change

  cf Docherty (2003); Ohala (1989); Labov (1994), (2001)
Social-indexicality

- linguistic variation **indexes** (= is linked to) information about speakers
  - group membership, regional and social
  - individual characteristics, including age, gender
  - changing states of speaker, e.g. physical and emotional

  e.g. Abercrombie (1967); Docherty (2003); Foulkes and Docherty (2006)
Indexical variation is integral to speech

- social-indexical information is intertwined with linguistic information, and is expressed using the same media
- speakers acquire and control social-indexical variation in production and perception
- as part of their communicative competence

(Foulkes and Docherty 2006; Foulkes 2010; Gumperz 1997)
Social-indexical variation

• e.g. Scottish English [bɪʔʌɾ]

  – /bɪtʌr/, i.e. bitter [= ‘sour’] vs /bɪdʌr/, bidder
    [= ‘someone putting in a bid to buy something’]

  linguistic

  – working class speaker, who typically uses [ʔ] for /t/,
    as opposed to middle-class [bɪtʌɾ]

social
inter- & intra-speaker variability and ‘social’ factors
Sociolinguistic context
Where is Glasgow?

- Glasgow is in Scotland, which is still (for now) in the UK, which is (very sadly) no longer in Europe
Glaswegian: sociolinguistic continuum

Scots
working-class

Standard Scottish English (SSE)
middle-class

Aitken (1979); Stuart-Smith (2003); Corbett and Stuart-Smith (2013)
Both Scots and Scottish Standard English are enregistered (Agha 2003)

https://www.youtube.com/watch?v=xk0sS4IFGXA
Variationist sociolinguistics

= ‘quantitative’ linguistics
= ‘Labovian’ paradigm
= urban dialectology
  – relating linguistic variation with social factors

• William Labov – initial research:
  – Martha’s Vineyard (MA) Labov (1963)
  – New York City (PhD) Labov (1966)
The (socio)linguistic variable

different ways of saying the same thing

‘linguistic item that has identifiable variants’
Wardhaugh (2002:141)

e.g. (t): [t] [ʔ] [tʰ] [tʰ], in e.g. bitter, water, cat

‘one which is correlated with some non-linguistic variable of the social context of the speaker, the addressee, the audience, the setting, etc.’

Labov (1972:237)
(socio)linguistic = ‘dependent’ variable
[varying aspect of language]

~ correlates with

extralinguistic = ‘independent’ variables
[varying aspects of society]
Picture Post, ‘The Forgotten Gorbals,’ 1948
Capturing the ‘social’

(three ‘waves’ of sociolinguistic theory)

First wave

Social categories

analyst-imposed, often broad, social categories, e.g.

Women
Working Class
Middle-aged
Glaswegian ...

e.g. Labov, *Sociolinguistic Patterns* (1972); *Principles of Linguistic Change* (2001)...
Second wave

Social networks
ethnographic
observed/reported links
- neighbours
- shared friends
- same church
- same street
- kids at same school...

e.g. Milroy (1987)
Third wave

Speaker agency

ethnographic
- linguistic practices emerge as part of shared social practices
e.g. Community of Practice
- construction of styles and social personae
- arising from stance-related shifts during interaction

Eckert (2000); (2018)
Social-indexicality

• linguistic variation **indexes** (= is linked to) social meanings:
  – **macro-social** categories, e.g. gender, social class, region, age
  – **micro-social** inter-personal connections and identities
  – **style** = intra-speaker variation
Gender
‘Women ... produce on average linguistic forms which more closely approach those of the standard language or have higher prestige than those produced by men’

(Trudgill, 1983:161)

e.g. [-in] in e.g. singing, walking

Why?
‘given the social position of women in our society... it is more necessary for women to secure and signal their social status linguistically’

(Trudgill, 1972:182)

e.g. [-in] in e.g. singing, walking
Eckert, e.g. (2000)

JOCKS
- School-orientated
- Respect authority
- Sports, school activities etc.
- Anti-school

BURNOUTS
- Anti-authority
- Drinking, smoking, sex, bad behaviour
‘The burnout girls are the most advanced speakers in the community overall, and the jock girls are the most conservative’. Eckert (1998: 73)
Ethnicity
Ethnicity and vowels in Glasgow teen girls

All vowels except FACE differ according to ethnicity, **Glasgow Asian** vs **Glasgow**

Alam (2015)
There are many different ways of ‘being Asian’...
within ethnicity
Glasgow-Asian teens
- 70 high school girls
- 3 year ethnography
- participant observation
  - dress, headwear
  - cultural
  - religious
  - Western practices

6 Communities of Practice

Alam (2015)
Within ethnicity, the FLEECE and BOOT vowels also differ according to shared social and cultural practices captured by the 6 Communities of Practice

Alam (2015)
There are many different ways of ‘being Glaswasian’

Alam (2015); Alam and Stuart-Smith (2014)
Social class
Class variation

non-regional accent (RP)

standard dialect

regional accent

non-standard dialect

prestige

less regional variation

more regional variation

stigma

upper class

working class
[f] for /th/, in e.g. *think*, *tooth* in Glasgow

- using [f] is correlated with **social class** and **age** – younger working-class speakers use it more

Stuart-Smith et al (2007);
Stuart-Smith et al (2013)
Intersectionality and sociolinguistic categories

Levon (2015) after Crenshaw, e.g. (1989)
Intraspeaker variation ('style')
Intraspeaker variation (‘style’)

‘A speech repertoire seems like a closet containing a specified number of clothing items’

(Coupland, 2007:82)
[r] in e.g. car in NYC

Socio Economic Class

6-8 lower middle class
9 upper middle class
4-5 lower middle class
2-3 working class
0-1 lower class

Labov (1966; 1972)
[r] in e.g. *car* in NYC

Socio Economic Class

- 6-8 lower middle class
- 9 upper middle class
- 4-5 lower middle class
- 2-3 working class
- 0-1 lower class

Labov (1966; 1972)
‘attention to speech’

Socio Economic Class

Labov (1966; 1972)
Are you slipping into a British accent?

Well, NOW I'm trying really hard NOT to...
Accommodation Theory

Are you slipping into a British accent?

Well, NOW I’m trying really hard NOT to...

e.g. Giles 1973
Accommodation Theory

- social-psychological
- interpersonal/interactive dynamics between individuals
- importance of attitudes and motivations of speakers on linguistic choices
- convergence
- divergence

Speech Accommodation Theory (SAT) (e.g. Giles et al. 1991)
Communication Accommodation Theory (CAT) (e.g. Giles 1973; Giles et al 2007)
[d] for /t/ in e.g. city

Coupland (1984), Fig.2 in Bell, in Coupland & Jaworski (1997: 248)
Audience design

Bell e.g. (1984)
[d] for /t/ in e.g. *later*

more [d]

Speaker agency

Persona construction
Style-shifting in Adele

[ʔ], [r] or [t] for /t/ in e.g. better

Thanks to Jo Pearce, MSV 2017
Style-shifting in Adele’s singing over time

[ʔ], [r] or [t] for /t/ in e.g. *better*

Thanks to Jo Pearce, MSV 2017
"It is impossible for an Englishman to open his mouth without making some other Englishman hate or despise him”.

George Bernard Shaw, Preface to Pygmalion (1912)

e.g. Dragojevic et al (2021)
In the UK, social evaluation of accents has remained constant for the last 50 years – standard accent (RP) most positive …. ethnic and urban accents least positive

https://accentbiasbritain.org/results-labels/
if I ever get the Glasgow uni accent
someone put a gun to my heed

The 'brutal' Glasgow Uni accent and why it drives everyone in the city crazy
## phonological variables

<table>
<thead>
<tr>
<th></th>
<th>Working-Class</th>
<th>Middle-Class</th>
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<tbody>
<tr>
<td><strong>relating to coda /r/</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number</td>
<td>shorter syllable [ɛ]</td>
<td>longer syllable [ʌ]</td>
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<td>nerve</td>
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<td>onset /r/</td>
<td>[ɾ]</td>
<td>[ɻ]</td>
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<td><em>ran</em></td>
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<tr>
<td>coda /l/</td>
<td>[ヴ]</td>
<td>[l]</td>
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<tr>
<td><em>well</em></td>
<td></td>
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</tbody>
</table>

MacFarlane & Stuart-Smith (2012)
e.g. *number*

‘Lee’ (WC)  ‘Phil’ (MC)

MacFarlane & Stuart-Smith (2012)
e.g. number

'Lee' (WC)  ‘Phil’ (MC)

MacFarlane & Stuart-Smith (2012)
judges were able to correctly assign phonetic variation from the same talker to the two social personae constructed only by brand logos

MacFarlane & Stuart-Smith (2012)
Some variables are better than others for judging social personae

MacFarlane & Stuart-Smith (2012)
Digital agents show sociolinguistic bias:

• Production: generally speak standard varieties in standard accent
• Reception: work better with standard varieties in standard accent (‘racial bias’; Koenecke et al 2020; Mengesha et al 2021)
Humans show sociolinguistic bias in responses to digital agents:

- Standard vs non-standard urban British English accents provoke different behaviours (Torres et al 2018)

‘It didn't understand my accent and after a few attempts it ignored me and said 'Closing Down' in a snotty English accent, and I ended up swearing at it.’ (Female, 55-59, class undisclosed)
Humans can show fine-grained phonetic adjustments to digital agents (e.g. Burnham et al 2010)

- and more so when identifying with the agent (Staum-Casasanto et al 2010)
- can be mediated by social factors (Zellou et al 2021), and individual traits (Snyder et al 2019)
- may be similar to that for a human voice (Cohn & Zellou 2021) but can also differ (Cohn et al 2021)
Humans can show sociolinguistic style shifting to digital agents:

• Scottish speakers show high rates of glottal stops for /t/ in e.g. *better*, to Alexa and when reading (Johnston D20 2020)
• Scottish speakers show weaker rhoticity in e.g. *car*, to Google than when reading (Turpin D20 2020)
Human expectations of interacting with a robot showed sociolinguistic asymmetry

Overall:

• most respondents expected to be able to understand the robot
• but they thought that they would need to change their speech so that the robot would understand them
• and they expressed doubt about whether having a conversation with the robot would be easy
Human expectations of interacting with a robot showed sociolinguistic asymmetry

Overall:

• most respondents expected to be able to understand the robot
• but they thought that they would need to change their speech so that the robot would understand them
• and they expressed doubt about whether having a conversation with the robot would be easy

Sample skewed towards older (62%), female (66%), working class (74%), Scottish residents (83%)
Human expectations of interacting with a robot were socially mediated

- younger participants were more confident about understanding the robot than older ones
- young men were less likely to expect to have to change their accent than middle-aged or older men
Human expectations of interacting with a robot were less positive for non-standard dialect speakers

- ‘Would the robot understand my accent? If not, it would mean repeating myself over and over’ (Male, 50-54, working-class)
- ‘Difficulty understanding accent may lead to having to repeat myself for the robot to understand me, or it may never end up understand[ing] me’ (Female, 35-39, working-class)
- ‘depending on the software I’d worry about it’s abilities with Glaswegian/Scottish accents’ (Male, 18-24, working-class)
Thank you!

and to Leona Johnston and Eloise Turpin for sharing their D20 Dissertation results for this talk; to Rhiannon Fyfe for sharing their unpublished project results; and to Mary Ellen Foster for drawing me into such an interesting research area!
Human expectations of interacting with a robot are socially-mediated:

- Younger respondents are more confident about understanding the robot
Human expectations of interacting with a robot are socially-mediated:

- Young men are less likely to change their accent than middle-aged or older men.